Docket No.: 46030/P044US/10407181
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Timothy E. Ostromek et al.

Application No.: 10/699,985

Confirmation No.: 5305

Filed: November 3, 2003

Art Unit: 2624

For: IMAGE PROCESSING USING OPTICALLY TRANSFORMED LIGHT

Examiner: B. Krasnic

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

As required under the Pre-Appeal Brief Pilot Program, this brief is filed within one month of the Panel Decision issued in this case on November 10, 2008. Since this brief is filed within one month of the Panel Decision, no extension of time fees are due.

The fees required under 37 C.F.R. § 41.20(b)(2) are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206:

I. Real Party In Interest
II Related Appeals and Interferences
III. Status of Claims
IV. Status of Amendments
V. Summary of Claimed Subject Matter
VI. Grounds of Rejection to be Reviewed on Appeal
VII. Argument
VIII. Claims Appendix
IX. Evidence Appendix
X. Related Proceedings Appendix

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

L-3 Communications Corporation, a Delaware corporation, having a business address of 10001 Jack Finney Boulevard, Greenville, Texas 75402.

II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 16 claims pending in application.

B. Current Status of Claims

1. Claims canceled: 7, 14
2. Claims withdrawn from consideration but not canceled: None
3. Claims pending: 1-6, 8-13, 15-18
4. Claims allowed: None
5. Claims rejected: 1-6, 8-13, 15-18

C. Claims On Appeal

The claims on appeal are claims 1-6, 8-13, 15-18

IV. STATUS OF AMENDMENTS

Appellant did not file an Amendment After Final Rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

A concise explanation of the subject matter defined in each of the claims separately argued in this appeal, which refers to the specification and to the drawings by reference characters, is provided below. All references to the specification and drawings are made by way of example for the convenience of the Board, as it is possible that other areas of the specification and drawings may contain further descriptive material. No limitations on the meaning of the following claim language is intended.

According to independent claim 1, a method for processing image information includes receiving light comprising image information (e.g., 100 of FIGURE 2 and page 5, lines 16-19), performing a first optical transform on the light to yield a first optically transformed light (e.g., 110 of FIGURE 2 and page 5, line 19 through page 6, line 28) and performing a second optical transform on the light to yield a second optically transformed light (e.g., 110 of FIGURE 2 and page 5, line 19 through page 6, line 28). The method of claim 1 further includes generating a first metric in accordance with the first optically transformed light (e.g., 114 of FIGURE 2 and page 7, lines 6-18), generating a second metric in accordance with the second optically transformed light (e.g., 114 of FIGURE 2 and page 7, lines 6-18), and processing the first metric and the second metric to yield a processed metric (e.g., 118 of FIGURE 2 and page 7, line 19 through page 8, line 23). The method of claim 1 also includes performing an inverse optical transform on the processed metric to process the image information of the light and generating an image from the processed metric (e.g., 120 of FIGURE 2 and page 8, lines 24-31), and displaying the image (e.g., 122 of FIGURE 2 and page 9, lines 1-6).

According to independent claim 8, a system for processing image information includes a plurality of optical transformers and operable to receive light comprising image information (e.g., 30 of FIGURE 1 and page 5, lines 16-19), a first optical transformer operable to perform a first optical transform on the light to yield a first optically transformed light, a second optical transformer operable to perform a second optical transform on the light to yield a second optically transformed light (e.g., 30a and 30b of FIGURE 1 and page 5, line 19 through page 6, line 28). The system further includes a first processor operable to generate a first metric in accordance with the first optically transformed light and a second processor operable to generate a second metric in accordance with the second optically transformed light (e.g., 34a and 34b of FIGURE 1 and page 7, lines 6-18). Moreover, the system includes an image processor operable to process the first metric and the second metric to yield a processed metric (e.g., 22 of FIGURE 1 and page 7, line 19 through page 8, line 23) and an inverse optical transformer operable to perform an inverse optical transform on the processed metric to process the image information of the light (e.g., 24 of FIGURE 1 and page 8, lines 24-31) and a display to generate an image from the processed metric display the image (e.g., 26 of FIGURE 1 and page 9, lines 1-6).

According to independent claim 15, a system for processing image information includes means for receiving light comprising image information (e.g., 10 and 30 of FIGURE 1 and page 5, lines 16-19 and page 5, line 26 through page 6, line 28), means for performing a first optical transform on the light to yield a first optically transformed light (e.g., 30a or 30b of FIGURE 1 and page 5, line 26 through page 6, line 28), and means for performing a second optical transform on the light to yield a second optically transformed light (e.g., 30a or 30b of FIGURE 1 and page 5, line 26 through page 6, line 28). The system further includes means for generating a first metric in accordance with the first optically transformed light (e.g., 34a or 34b of FIGURE 1 and page 7, lines 6-18) and means for generating a second metric in accordance with the second optically transformed light (e.g., 34a or 34b of FIGURE 1 and page 7, lines 6-18). The system also includes means for processing the first metric and the second metric to yield a processed metric (e.g., 22 of FIGURE 1 and page 7, line 19 through page 8, line 23), means for performing an inverse optical transform on the processed metric to process the image information of the light (e.g., 24 of FIGURE 1 and page 8, lines 24-31), and means for reporting results (e.g., 26 of FIGURE 1 and page 9, lines

1-6). Further, modifications can be made to the system, such as explained at page 9, lines 7-19 and page 10, line 28 through page 11, line 2.

According to independent claim 16, a method for processing image information includes receiving light comprising image information (e.g., 100 of FIGURE 2 and page 5, lines 16-19), performing a first optical transform on the light to yield a first optically transformed light, the first optical transform comprising a first Fourier transform (e.g., 110 of FIGURE 2 and page 5, line 19 through page 6, line 10), and performing a second optical transform on the light to yield a second optically transformed light, the second optical transform comprising a second Fourier transform, the first optical transform substantially similar to the second optical transform or compatibly different from the second optical transform (e.g., 110 of FIGURE 2 and page 5, line 19 through page 6, line 10 and page 6, lines 21-28). The method further includes generating a first metric in accordance with the first optically transformed light (e.g., 114 of FIGURE 2 and page 7, lines 6-18) and generating a second metric in accordance with the second optically transformed light (e.g., 114 of FIGURE 2 and page 7, lines 6-18). Moreover, the method includes processing the first metric and the second metric to yield a processed metric by performing a procedure selected from the group consisting of a first procedure and a second procedure, the first procedure comprising: selecting first data from the first metric, selecting second data from the second metric, and fusing the first data and the second data to yield the processed metric, and second procedure comprising: generating the processed metric in response to the first metric and the second metric, and detecting a target using the processed metric (e.g., 118 of FIGURE 2 and page 7, line 19 through page 8, line 23). An inverse optical transform is performed on the processed metric to process the image information of the light, and an image is generated from the processed metric (e.g., 120 of FIGURE 2 and page 8, lines 24-31). The image is displayed (e.g., 122 of FIGURE 2 and page 9, lines 1-6).

According to independent claim 17, a system for performing processing upon an image includes a first optical transformer operable to perform a first optical transform on received light (e.g., 30a of FIGURE 1 and page 5, line 19 through page 6, line 28), a second optical transformer operable to perform a second optical transform on said received light (e.g., 30b of FIGURE 1 and page 5, line 19 through page 6, line 28), a first sensor in communication with said first optical transformer to sense the optically transformed light and

generate a first signal describing information of the light (e.g., 32a of FIGURE 1 and page 6, line 29 through page 7, line 5), a second sensor in communication with said second optical transformer to sense the optically transformed light and generate a second signal describing information of the light (e.g., 32b of FIGURE 1 and page 6, line 29 through page 7, line 5), a first processor in communication with said first sensor to receive said first signal and to generate first data describing one or more features of said image (e.g., 34a of FIGURE 1 and page 7, lines 6-18), a second processor in communication with said second sensor to receive said second signal and to generate second data describing said one or more features of said image (e.g., 34b of FIGURE 1 and page 7, lines 6-18), a third processor receiving said first and second data and forming a fused image signal therefrom (e.g., 22 of FIGURE 1 and page 7, line 19 through page 8, line 23), an inverse transformer receiving the fused image signal and performing an inverse transform for said first optical transform and a second inverse transform for said second optical transform (e.g., 24 of FIGURE 1 and page 8, lines 24-31), and a display receiving inversely transformed image data from said inverse transformer and displaying an image therefrom (e.g., 26 of FIGURE 1 and page 9, lines 1-6).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

First Ground—Claims 1-2, 4-6, 8, 9 and 11-13, and 15-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 4,462,046 (hereinafter *Spight*) in view of US Patent No. 7,187,810 (hereinafter *Clune*).

Second Ground—Claims 3 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Spight*, as modified by *Clune*, as applied to claims 1 and 8 above, and further in view of US Patent No. 5,537,669 (hereinafter *Evans*).

VII. ARGUMENT

A. First Ground of Rejection

Claims 1-2, 4-6, 8, 9 and 11-13, and 15-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Spight* in view of *Clune*. The rejections should be withdrawn, as explained below.

The test for non-obvious subject matter is whether the differences between the subject matter and the prior art are such that the claimed subject matter as a whole would have been obvious to a person having ordinary skill in the art to which the subject matter pertains. The United States Supreme Court in *Graham v. John Deere and Co.*, 383 U.S. 1 (1966) set forth the factual inquiries which must be considered in applying the statutory test: (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; and (3) resolving the level of ordinary skill in the pertinent art. As discussed further hereafter, Appellant respectfully asserts that the claims include non-obvious differences over the cited art.

As discussed further below, the rejections should be withdrawn because when considering the scope and content of the applied *Spight* and *Clune* references there are significant differences between the applied combination and claims 1-2, 4-6, 8, 9 and 11-13, and 15-18, as the applied combination fails to disclose all elements of these claims. Thus, considering the lack of disclosure in the applied combination of all elements of claims 1-2, 4-6, 8, 9 and 11-13, and 15-18, one of ordinary skill in the art would not find these claims obvious under 35 U.S.C. §103, and therefore the rejections should be reversed at least for this reason.

1. Claims 1, 2 and 4-6

Claim 1 recites, in part, "generating a first metric in accordance with the first optically transformed light" and "generating a second metric in accordance with the second optically transformed light." The rejection acknowledges that *Spight* does not teach or suggest the feature and, instead, relies upon *Clune* to teach or suggest the feature. *See* Final Office Action of July 2, 2008, at 7-8 (the "Final Office Action") and the Office Action of November 9, 2007 at 9-10. However, the rejection fails to make a plausible argument that *Clune* teaches or suggests the above-recited features of claim 1, and the rejection should be reversed.

Spight teaches a machine vision system that determines the location and orientation of workpieces in a batch manufacturing environment. *See Spight* at title and Col. 1, lines 46-49. The system monitors a scene that is viewed with a video camera. *See id.* at Col. 1, line 66 through Col. 2, line 8. The viewed scene is output on CRT 10. A reference scene is output on CRT 12. The light from each of the CRTs is passed along it respective path. Among

other things, the light from each CRT is optically Fourier transformed (at respective lenses 30 and 32) and then combined by beam splitter 34. The combined light is optically inverse-Fourier transformed and picked up by video camera 40. Video camera 40 changes the inversely transformed combined image to an electrical signal, which is monitored for its degree of correlation between the viewed scene and the reference scene. *See id.* at Col. 2, line 53 through Col. 3, line 6.

Clune teaches a system for correcting image misalignment between two images in a sequence of images. *See Clune* at Abstract. With respect to claim 1, the rejection cites *Clune* in order to show that the claimed features, "generating a first metric in accordance with the first optically transformed light," and "generating a second metric in accordance with the second optically transformed light" are found in the prior art. *See* Final Office Action at 7-8.

Appellant had originally understood the rejection to propose placing *Clune*'s steps 210 and 216 into the *Spight* system after *Spight*'s Fourier transform lenses (items 30 and 32 of FIGURE 1 of *Spight*). Appellant responded appropriately by showing 1) that the cited combination failed to teach or suggest the features of claim 1, and 2) that the cited combination was improper because it would modify the system of *Spight* to be inoperable. *See* Response to Non-Final Office Action, filed February 8, 2008, at 10-11. These arguments are correct, but for the sake of brevity, Appellant does not repeat them herein.

In response to Appellant's observations, the Examiner now clarifies the rejection by stating that the rejection really meant to propose placing "Clune's initial display means 262 and 276...between *Spight*'s Fourier transform lens and yield processor correlation." *See* Final Office Action at 3. The rejection further states that the "pre-displays" 262 and 276 "would just allow the user to visually see the differences between the initial image information and the correlated processed image information for validation for the correction of misalignment." *See id.* In other words, to the best of Appellant's understanding, the rejection now asserts that i) *Clune* includes "display means" at 262 and 276 (see FIGURES 2B-2 and 2C-2), ii) the "display means" at 262 and 276 generate the claimed metrics, and iii) the "display means" at 262 and 276 are just user displays that allow a user to compare initial image information and correlated processed image information. The rejection does not assert that light from items 262 and 276 would be used for further processing in the system of

Spight; rather the rejection asserts that items 262 and 276 are just user displays. Not only is the rejection a moving target, but it is wrong because the currently proposed arrangement makes little sense when put in context with the claim language.

Claim 1 recites, in part, "generating a first metric in accordance with the first optically transformed light" and "generating a second metric in accordance with the second optically transformed light." If, as the rejection now suggests, "display means" 262 and 276 are just user displays, then they do not generate the claimed metrics. For instance, claim 1 goes on to recite that the claimed metrics, which are generated as recited above, are also processed to yield a processed metric, and an inverse optical transform is performed on the processed metrics. The features of claim 1 are not satisfied by the rejection's proposed system that is asserted to generate a metric by "just allow[ing] a user to visually see differences." *See* Final Office Action at 3. Simply allowing a user to visually see information does not process metrics nor perform an inverse optical transform on metrics, as claimed. Thus, the rejection strives to show generated metrics, but in doing so, the proffered analysis fails to produce a combination of *Spight* and *Clune* that can also process generated metrics and inversely optically transform the processed metrics. Therefore, the combination of *Spight* and *Clune* cannot, and does not, teach or suggest generating a first and a second metric, as claimed by claim 1.

Dependent claims 2 and 4-6 each depend either directly or indirectly from independent claim 1 and, thus, inherit all of the limitations of independent claim 1. Thus, the cited combination of *Spight* and *Clune* does not teach or suggest all claim limitations of claims 2 and 4-6. Dependent claims 2 and 4-6 are allowable at least because of their dependence from claim 1 for the reasons discussed above. Accordingly, Appellant respectfully requests the reversal of the 35 U.S.C. § 103 rejection of claims 1, 2 and 4-6.

2. Claims 8, 9 and 11-13

Independent claim 8 recites, in part, "a first processor operable to generate a first metric in accordance with the first optically transformed light," and "a second processor operable to generate a second metric in accordance with the second optically transformed light." The rejection acknowledges that *Spight* does not teach or suggest the above-recited features of claim 8 and, instead, relies on *Clune* to supply those missing claim features. To

the best of Appellant's understanding, the rejection now asserts that *Clune* includes "display means" that are just user displays to allow a user to compare initial image information and correlated processed image information. The rejection is wrong and should be reversed.

If, as the rejection now suggests, "display means" 262 and 276 are just user displays, then they do not generate the claimed metrics. For instance, claim 8 goes on to recite that the claimed metrics, which are generated as recited above, are also processed to yield a processed metric, and an inverse optical transform is performed on the processed metric. The features of claim 8 are not satisfied by the rejection's proposed system that is asserted to generate a metric by "just allow[ing] a user to visually see differences." *See* Final Office Action at 3. Simply allowing a user to visually see information does not process a metric nor perform an inverse optical transform on a processed metric, as claimed. Therefore, the combination of *Spight* and *Clune* cannot, and does not, teach or suggest generating a first and a second metric, as claimed by claim 8.

Dependent claims 9 and 11-13 each depend either directly or indirectly from independent claim 8 and, thus, inherit all of the limitations of independent claim 8. Thus, the cited combination of *Spight* and *Clune* does not teach or suggest all claim limitations of claims 9 and 11-13. Dependent claims 9 and 11-13 are allowable at least because of their dependence from claim 8 for the reasons discussed above. Accordingly, Appellant respectfully requests the reversal of the 35 U.S.C. § 103 rejection of claims 8, 9 and 11-13.

3. Claim 15

Independent claim 15 recites, in part, "means for generating a first metric in accordance with the first optically transformed light," and "means for generating a second metric in accordance with the second optically transformed light." The rejection acknowledges that *Spight* does not teach or suggest the above-recited features of claim 15 and, instead, relies on *Clune* to supply those missing claim features. To the best of Appellant's understanding, the rejection now asserts that *Clune* includes "display means" at 262 and 276 that are just user displays to allow a user to compare initial image information and correlated processed image information. The rejection is wrong and should be reversed.

If, as the rejection now suggests, "display means" 262 and 276 are just user displays, then they do not generate the claimed metrics. For instance, claim 15 goes on to recite that the claimed metrics, which are generated as recited above, are also processed to yield a processed metric, and an inverse optical transform is performed on the processed metric. The features of claim 15 are not satisfied by the rejection's proposed system that is asserted to generate a metric by "just allow[ing] a user to visually see differences." *See* Final Office Action at 3. Simply allowing a user to visually see information does not process a metric nor perform an inverse optical transform on a processed metric, as claimed. Therefore, the combination of *Spight* and *Clune* cannot, and does not, teach or suggest generating a first and a second metric, as claimed by claim 15. Accordingly, Appellant respectfully requests the reversal of the 35 U.S.C. § 103 rejection of claim 15.

4. Claim 16

Independent claim 16 recites, in part, "generating a first metric in accordance with the first optically transformed light," and "generating a second metric in accordance with the second optically transformed light." The rejection acknowledges that *Spight* does not teach or suggest the above-recited features of claim 16 and, instead, relies on *Clune* to supply those missing claim features. To the best of Appellant's understanding, the rejection now asserts that *Clune* includes "display means" at 262 and 276 that are just user displays to allow a user to compare initial image information and correlated processed image information. The rejection is wrong and should be reversed.

If, as the rejection now suggests, "display means" 262 and 276 are just user displays, then they do not generate the claimed metrics. For instance, claim 16 goes on to recite that the claimed metrics, which are generated as recited above, are also processed to yield a processed metric, and an inverse optical transform is performed on the processed metric. The features of claim 16 are not satisfied by the rejection's proposed system that is asserted to generate a metric by "just allow[ing] a user to visually see differences." *See* Final Office Action at 3. Simply allowing a user to visually see information does not process metrics nor perform an inverse optical transform on a processed metric, as claimed. Therefore, the combination of *Spight* and *Clune* cannot, and does not, teach or suggest generating a first and

a second metric, as claimed by claim 16. Accordingly, Appellant respectfully requests the reversal of the 35 U.S.C. § 103 rejection of claim 16.

5. Claims 17 and 18

Independent claim 17 recites, in part, "a first processor in communication with said first sensor to receive said first signal and to generate first data describing one or more features of said image," and "a second processor in communication with said second sensor to receive said second signal and to generate second data describing said one or more features of said image." The rejection acknowledges that *Spight* does not teach or suggest the above-recited features of claim 17 and, instead, relies on *Clune* to supply those missing claim features. To the best of Appellant's understanding, the rejection now asserts that *Clune* includes "display means" at 262 and 276 that are just user displays to allow a user to compare initial image information and correlated processed image information. The rejection is wrong and should be reversed.

If, as the rejection now suggests, "display means" 262 and 276 are just user displays, then they do not generate the claimed first and second data describing features of the image. For instance, claim 17 goes on to recite that the claimed first and second data describing features of the image, which are generated as recited above, are also processed to form a fused image signal, and an inverse transform is performed on the fused image signal. The features of claim 17 are not satisfied by the rejection's proposed system that is asserted to generate the data by "just allow[ing] a user to visually see differences." *See* Final Office Action at 3. Simply allowing a user to visually see information does not form a fused image signal nor perform an inverse transform on the fused image signal, as claimed. Therefore, the combination of *Spight* and *Clune* cannot, and does not, teach or suggest the above-recited feature of claim 17.

Dependent claim 18 depends from independent claim 17 and, thus, inherits all of the limitations of independent claim 17. Thus, the cited combination does not teach or suggest all claim limitations of claim 18. It is respectfully submitted that dependent claim 18 is allowable at least because of its dependence from claim 17 for the reasons discussed above. Accordingly, Appellant respectfully requests the reversal of the 35 U.S.C. § 103 rejection of claims 17 and 18.

B. Second Ground of Rejection

Claims 3 and 10 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Spight*, as modified by *Clune*, as applied to claims 1 and 8 above, and further in view of *Evans*.

1. Claim 3

As shown above, the combination of *Spight* and *Clune* does not teach or suggest all features of independent claim 1. Dependent claim 3 depends from independent claim 1 and, thus, inherits all of the limitations of independent claim 1. Thus, the combination of *Spight* and *Clune* does not teach or suggest all claim limitations of claim 3. *Evans* is not proffered to supply the features shown above to be missing from *Spight* and *Clune*, nor does it appear that the cited portions of *Evans* supply such features. It is respectfully submitted that dependent claim 3 is allowable at least because of its dependence from claim 1 for the reasons discussed above. Accordingly, Appellant respectfully requests the withdrawal of the 35 U.S.C. § 103 rejection of claim 3.

2. Claim 10

As shown above, the combination of *Spight* and *Clune* does not teach or suggest all features of independent claim 8. Dependent claim 10 depends from independent claim 8 and, thus, inherits all of the limitations of independent claim 8. Thus, the combination of *Spight* and *Clune* does not teach or suggest all claim limitations of claim 10. *Evans* is not proffered to supply the features shown above to be missing from *Spight* and *Clune*, nor does it appear that the cited portions of *Evans* supply such features. It is respectfully submitted that dependent claim 10 is allowable at least because of its dependence from claim 8 for the reasons discussed above. Accordingly, Appellant respectfully requests the withdrawal of the 35 U.S.C. § 103 rejection of claim 10.

VIII. CLAIMS APPENDIX

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

IX. EVIDENCE APPENDIX

Appellant includes herewith a declaration by inventor Dr. Timothy Ostromek, the declaration being entered by virtue of Appellant's response of September 6, 2007. The declaration of Dr. Ostromek was submitted in response to a rejection that has since been withdrawn. Nevertheless, Appellant submits the declaration herewith for the sake of completeness and to comply with 37 C.F.R. § 41.37(c)(ix).

X. RELATED PROCEEDINGS APPENDIX

No related proceedings are referenced in II. above, hence copies of decisions in related proceedings are not provided.

Dated: December 9, 2008

Respectfully submitted,

By________________________

Thomas Kelton
Registration No.: 54,214
FULBRIGHT & JAWORSKI L.L.P.
2200 Ross Avenue, Suite 2800
Dallas, Texas 75201-2784
(214) 855-7115
(214) 855-8200 (Fax)
Attorney for Appellant

APPENDIX A

The claims on appeal (*i.e.*, not including withdrawn or canceled claims) are as follows:

1. A method for processing image information, comprising:

receiving light comprising image information;

performing a first optical transform on the light to yield a first optically transformed light;

performing a second optical transform on the light to yield a second optically transformed light;

generating a first metric in accordance with the first optically transformed light;

generating a second metric in accordance with the second optically transformed light;

processing the first metric and the second metric to yield a processed metric;

performing an inverse optical transform on the processed metric to process the image information of the light;

generating an image from the processed metric; and

displaying the image.

2. The method of Claim 1, wherein the first optical transform is substantially similar to the second optical transform.

3. The method of Claim 1, wherein the first optical transform is compatibly different from the second optical transform, such that the first and second optical transforms each target different aspects of the image information.

4. The method of Claim 1, wherein:

the first optical transform comprises a first Fourier transform; and

the second optical transform comprises a second Fourier transform.

5. The method of Claim 1, wherein processing the first metric and the second metric to yield a processed metric comprises:

selecting first data from the first metric;

selecting second data from the second metric; and

fusing the first data and the second data to yield the processed metric.

6. The metric of Claim 1, wherein processing the first metric and the second metric to yield a processed metric comprises:

generating the processed metric in response to the first metric and the second metric; and

detecting a target using the processed metric.

8. A system for processing image information, comprising:

a plurality of optical transformers operable to receive light comprising image information, a first optical transformer operable to perform a first optical transform on the light to yield a first optically transformed light, a second optical transformer operable to perform a second optical transform on the light to yield a second optically transformed light;

a first processor operable to generate a first metric in accordance with the first optically transformed light;

a second processor operable to generate a second metric in accordance with the second optically transformed light;

an image processor operable to process the first metric and the second metric to yield a processed metric;

an inverse optical transformer operable to perform an inverse optical transform on the processed metric to process the image information of the light;

generate an image from the processed metric; and

display the image.

9. The system of Claim 8, wherein the first optical transform is substantially similar to the second optical transform.

10. The system of Claim 8, wherein the first optical transform is compatibly different from the second optical transform, such that the first and second optical transforms each target different aspects of the image information.

11. The system of Claim 8, wherein:

the first optical transform comprises a first Fourier transform; and

the second optical transform comprises a second Fourier transform.

12. The system of Claim 8, wherein the image processor is operable to process the first metric and the second metric to yield a processed metric by:

selecting first data from the first metric;

selecting second data from the second metric; and

fusing the first data and the second data to yield the processed metric.

13. The system of Claim 8, wherein the image processor is operable to process the first metric and the second metric to yield a processed metric by:

generating the processed metric in response to the first metric and the second metric; and

detecting a target using the processed metric.

15. A system for processing image information, comprising:

means for receiving light comprising image information;

means for performing a first optical transform on the light to yield a first optically transformed light;

means for performing a second optical transform on the light to yield a second optically transformed light;

means for generating a first metric in accordance with the first optically transformed light;

means for generating a second metric in accordance with the second optically transformed light;

means for processing the first metric and the second metric to yield a processed metric;

means for performing an inverse optical transform on the processed metric to process the image information of the light; and

means for reporting results.

16. A method for processing image information, comprising:

receiving light comprising image information;

performing a first optical transform on the light to yield a first optically transformed light, the first optical transform comprising a first Fourier transform;

performing a second optical transform on the light to yield a second optically transformed light, the second optical transform comprising a second Fourier transform, the first optical transform substantially similar to the second optical transform or compatibly different from the second optical transform;

generating a first metric in accordance with the first optically transformed light;

generating a second metric in accordance with the second optically transformed light;

processing the first metric and the second metric to yield a processed metric by performing a procedure selected from the group consisting of a first procedure and a second procedure, the first procedure comprising: selecting first data from the first metric, selecting second data from the second metric, and fusing the first data and the second data to yield the processed metric, and second procedure comprising: generating the processed metric in response to the first metric and the second metric, and detecting a target using the processed metric;

performing an inverse optical transform on the processed metric to process the image information of the light;

generating an image from the processed metric; and

displaying the image.

17. A system for performing processing upon an image, said system comprising:

a first optical transformer operable to perform a first optical transform on received light;

a second optical transformer operable to perform a second optical transform on said received light;

a first sensor in communication with said first optical transformer to sense the optically transformed light and generate a first signal describing information of the light;

a second sensor in communication with said second optical transformer to sense the optically transformed light and generate a second signal describing information of the light;

a first processor in communication with said first sensor to receive said first signal and to generate first data describing one or more features of said image;

a second processor in communication with said second sensor to receive said second signal and to generate second data describing said one or more features of said image;

a third processor receiving said first and second data and forming a fused image signal therefrom;

an inverse transformer receiving the fused image signal and performing an inverse transform for said first optical transform and a second inverse transform for said second optical transform; and

a display receiving inversely transformed image data from said inverse transformer and displaying an image therefrom.

18. The system of claim 17 wherein said first and second optical transforms are selected from the group consisting of:

a Fourier transform; and

a geometric transform.

APPENDIX B

Declaration of Dr. Ostromek, entered September 6, 2007.

APPENDIX C

None.

Declaration of Timothy E. Ostromek

1. My name is Timothy E. Ostromek. I am over the age of twenty-one (21) years, of sound mind and capable of making the statements set forth in this Declaration. I am competent to testify to matters set forth herein. All the facts and statements contained herein are within my personal knowledge and they are, in all things, true and correct.

2. I received a bachelors of science degree in Physics from Cleveland State University in 1988, a master of science degree in Physics from Michigan State University in 1990, and a doctor of philosophy in Physics from University of Texas at Dallas in 1996. I have worked for Litton Electro-Optical Systems, a subsidiary of Northrop Grumman Corporation for ten (10) years (see attached Biography). My current position at Litton Electro-Optical Systems, a subsidiary of Northrop Grumman Corporation is Senior Technology Officer.

3. I am an inventor of subject matter claimed in United States Patent Application 10/699,985 and am currently employed by an affiliate of the assignee.

4. I have read cited portions of United States Patent 4,462,046 (hereinafter, Spight) and United States Patent 5,224,174 (hereinafter, Schneider). Spight is an analog Fourier correlator that is intended to be installed in a manufacturing environment. The Fourier correlator serves as a vision system to help with robots that interact with objects in the manufacturing environment. The vision system uses light to identify the position and orientation of objects on, for example, and assembly line.

5. The system of Schneider is a fingerprint imaging system that uses ultrasound to scan the surface of the finger and some portion under the surface of the finger. Schneider is concerned with acquiring a very accurate image of the fingerprint in order to perform pattern recognition thereon. The Schneider system requires contact between the object surface being imaged and a surface of the system.

6. It would have been unclear to a person of ordinary skill in the art at the filing of the present application how to combine the systems of Spight and Schneider to

include target detecting ability. For example, the system of Schneider relies on ultrasound to provide the precision that it needs for high-quality fingerprint scans. However, to provide ultrasound capability, contact must be made by a surface being imaged and a surface of the Schneider machine. It is not clear how such contact can be made without interfering with the operation of the assembly line or the movement of the robots in Spight. One of ordinary skill in the art at the time the present application was filed would have found the systems of Spight and Schneider too disparate to combine for at least the above-articulated reason.

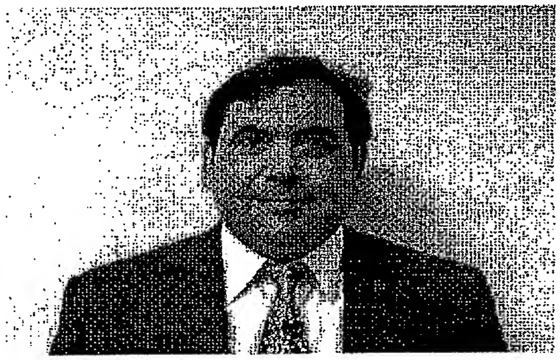
7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Timothy E. Ostromek

NORTHROP GRUMMAN

Electro-Optical Systems

Tim Ostromek Senior Technology Officer
3414 Herrmann Drive, Dallas, TX 75041
tel: 972-840-5729, fax: 972-840-7678, mobile: 469-877-1625



Dr. TIMOTHY E. OSTROMEK
Senior Technology Officer
Northrop Grumman - EOS

EDUCATION

Adjunct Professor of Physics, University of Texas at Dallas 2006
Visiting Professor of Physics, University of Texas at Dallas 1997
Ph.D. Physics, University of Texas at Dallas, Richardson, TX 1996
M.S. Physics, Michigan State University, East Lansing, MI 1990
B.S. Physics, Cleveland State University, Cleveland, OH 1988

RESEARCH AND WORK RELATED ACTIVITIES

Tim Ostromek is the Senior Technology Officer and is a leader in the technical concept and business development of Northrop Grumman EOS. Tim's previous experience involved the theoretical and experimental investigation of semiconductors, semiconductor heterostructures and optical systems. Tim brings the application of theoretical physics, advanced mathematical methods and extensive experience in materials analysis techniques to the development of new electro-optical science and products. In the course of his work, he has acquired experience in utilizing many different electronic and electro-optical methods to achieve specific development objectives. Some of these methods include advanced high speed digital electronics, optical transfer systems, solid state lasers and neural network system design and analysis. Tim has developed noise and signal theories with direct applications to the hardware and software of laser rangefinders and other detector based systems. Tim has produced peer reviewed publications, presentations, and patents and is currently an Adjunct Professor of Physics at The University of Texas at Dallas. Tim is a member of the American Physical Society, Sigma Xi, SPIE and IEEE.

Product development includes digital image fusion, goggles, weapon sights, drivers viewers, targeting systems, man portable surveillance, crew serve applications, helicopter and fixed wing, ground sensors and UAVs as well related sensors and sensor networks. Clients and customers include SOCOM, US Army CECOM, USMC, NSWC, USAF, FBI, US Coast Guard, UK MOD and other Defense and Security Departments from around the world.

Technical and engineering program management lead on US Army CECOM ETLOS, ENVG, FMWS and US SOCOM ETS programs. Technical and engineering program management team member on US Army CECOM DENVG and DFCU programs.

Dr. Ostromek resides in Dallas with his wife Rhonda and daughter Lydia.